CONTENTS

No. 1 JANUARY, 1946

John Raymond Murlin ..... *Frontispiece*
John R. Murlin Honor Volume 3
John Raymond Murlin investigator, teacher, colleague. An appreciation 5
D. K. Bosshardt and R. H. Barnes. The determination of metabolic fecal nitrogen and protein digestibility. Two figures 13
D. K. Bosshardt, Laura C. Ydse, Mary M. Ayres and R. H. Barnes. The use of mice for the measurement of the growth promoting quality of proteins. Five figures 23
H. G. Barott and Emma M. Pringle. Energy and gaseous metabolism of chicken from hatch to maturity as affected by temperature. Four figures 35
P. B. Pearson and A. L. Darnell. With the technical assistance of Jacqueline Weir. The thiamine, riboflavin, nicotinic acid and pantothenic acid content of colostrum and milk of the cow and ewe 51
S. H. Wittwer. With the technical assistance of H. R. Goff. Vegetable crops in relation to soil fertility. IV. Nutritional values of New Zealand spinach 59
Henry E. Paul and Mary F. Paul. The relation of vitamin intake to length of life, growth, tooth structure and eye condition. Three figures 67
George M. Briggs. Nicotinic acid deficiency in turkey poults and the occurrence of perosis. One figure 79
W. A. Krehl, P. S. Sarma, L. J. Teply and C. A. Elvehjem. Factors affecting the dietary niacin and tryptophane requirement of the growing rat. One figure 85
W. W. Heinemann, M. E. Ensminger, T. J. Cunha and E. C. McCulloch. The relation of the amount of thiamine in the ration of the hog to the thiamine and riboflavin content of the tissue. Two figures 107
Dorothy Sheldon McLean, Gladys Kinsman Lewis, Elizabeth Jensen, Milicent Hathaway, Herta Breiter and Julia Outhouse Holmes. Further studies on the calcium requirement of preschool children. Two figures 127

No. 2 FEBRUARY, 1946

Philip Handler and I. N. Dubin. The significance of fatty infiltration in the development of hepatic cirrhosis due to choline deficiency. One text figure and one plate (five figures) 141
Aubrey P. Stewart, Jr. and Paul F. Sharp. Vitamin C content of market milk, evaporated milk, and powdered whole milk. Two figures 161

HARRY J. DEUEL, JR., M. C. HRUBETZ, CORNELIA H. JOHNSTON, RICHARD J. WINZLER, ERNEST GEIGER AND G. SCHNAKENBERG. Studies on the nutritive value of fish proteins. I. Evaluation by the rat growth method and by the Cannon method. Two figures 175

HARRY J. DEUEL, JR., M. C. HRUBETZ, CORNELIA H. JOHNSTON, HILDA S. ROLLMAN AND ERNEST GEIGER. Studies on the nutritive value of fish proteins. II. The use of mackerel protein in the bioassay test for vitamin A 187

R. K. BOUTWELL, R. P. GEYER, A. W. HALVERSON AND E. B. HART. The availability of wheat bran phosphorus for the rat 193

E. B. FORBES, R. W. SWIFT, R. F. ELLIOTT AND W. H. JAMES. Relation of fat to economy of food utilization. I. By the growing albino rat 203

E. B. FORBES, R. W. SWIFT, R. F. ELLIOTT AND W. H. JAMES. Relation of fat to economy of food utilization. II. By the mature albino rat 213

L. A. MOORE. Vitamin A, ascorbic acid and spinal fluid pressure relationships in the young bovine 229

J. B. ALLISON, R. D. SEELEY, J. H. BROWN AND J. A. ANDERSON. The evaluation of proteins in hypoproteinemic dogs. Three figures 237

ARTHUR J. MUELLER AND WARREN M. COX, JR. The effect of changes in diet on the volume and composition of rat milk. Four figures 249

No. 3 MARCH, 1946

KARL E. RAPP, J. T. SKINNER AND J. S. MCHARGUE. The nutritive value of the protein in the tobacco-seed oilmeal. Three figures 261

KARL E. RAPP, J. T. SKINNER AND J. S. MCHARGUE. The nutritive value of tobacco-seed oil. Two figures 273

RUTH F. HARRELL. Mental response to added thiamine. Six figures 283

EDWIN L. SEXTON, JOHN W. MEHL AND HARRY J. DEUEL, JR. Studies on carotenoid metabolism. VI. The relative provitamin A activity of carotene when introduced orally and parenterally in the rat. Two figures .. 299

D. B. PARRISH, E. ROBERTA SHIMER AND J. S. HUGHES. Growth and food preference of rats fed a lactose-dried milk ration containing butter fat or corn oil. One figure 321

LILLIAN S. BENTLEY AND AGNES FAY MORGAN. The influence of choline and of trypan blue upon the utilization of carotene and vitamin A for liver storage of vitamin A. One figure 333

MARGARET IVES, ANN E. POLLARD, C. A. ELVEHJEM AND F. M. STRONG. The nutritive value of canned foods. XVII. Pyridoxine, biotin and "folic acid." 347

HARRY G. DAY, K. G. WAKIM, WILLIAM H. ZIMMERMAN AND L. S. MCCLUNG. Nutritional status of rats on milk diets containing succinylsulfathiazole 355

ANTON J. CARLSON AND FREDERICK HOELZEL. Apparent prolongation of the life span of rats by intermittent fasting. One figure 363

H. H. MITCHELL AND T. S. HAMILTON. The effect of different grades of cocoa upon the retention of dietary calcium by growing rats. 377

No. 4 APRIL, 1946

J. C. Fritz, J. H. Hooper, J. L. Halpin and H. P. Moore. Failure of feather pigmentation in bronze poults due to lysine deficiency. One figure 387
E. M. Scott. Self selection of diet. I. Selection of purified components. Two figures 397
F. R. Steggerda and H. H. Mitchell. Variability in the calcium metabolism and calcium requirements of adult human subjects 407
F. R. Steggerda and H. H. Mitchell. The effect of the citrate ion on the calcium metabolism of adult human subjects 423
B. S. Schweigert, James H. Shaw, Marie Zepplin and C. A. Elvehjem. Dental caries in the cotton rat. VI. The effect of the amount of protein, fat and carbohydrate in the diet on the incidence and extent of carious lesions 439
Robert John Evans and James McGinnis. The influence of autoclaving soybean oil meal on the availability of cystine and methionine for the chick 449
Juan J. Angulo, César Fuentes and Margarita Johnson. The carotene content of Cuban foods 463
Elizabeth Chant Robertson and A. Lloyd Morgan. The effects of added vitamin A on the conjunctiva and the level of vitamin A in the blood. One figure 471
A. R. Patton, J. P. Marvel, H. G. Petering and J. Waddell. The nutritional significance of animal protein supplements in the diet of the chick 485
Marjorie M. Nelson and Herbert M. Evans. Pantothenic acid deficiency and reproduction in the rat 497

No. 5 MAY, 1946

John B. Field and Henrik Dam. Influence of diet on plasma fibrinogen in the chick 509
John Haldi and Winfrey Wynn. Observations on efficiency of swimmers as related to some changes in pre-exercise nutriment 525
John R. Murlin, Leslie E. Edwards, Estelle E. Hawley and Leland C. Clark. With the assistance of Helen Ryer, Edna Brown, Doris Smith, Dorothy Gill, Elizabeth Nasset and Seraphine Fried. Biological value of proteins in relation to the essential amino acids which they contain. I. The endogenous nitrogen of man. Two figures 533
John R. Murlin, Leslie E. Edwards, Estelle E. Hawley and Leland C. Clark. With the assistance of Helen Ryer and Elizabeth Nasset. Biological value of proteins in relation to the essential amino acids which they contain. II. Interconvertibility of biological values illustrated by supplementing egg and soy protein with essential amino acids. Two figures 553
Sam. Nordfeldt. The influence of phosphorus, calcium and vitamin D_3 upon the fat content of the skeleton in growing pigs 565
E. Neige Todhunter and Thelma J. McMillan. The ascorbic acid content of whole blood plasma of normal rats with evidence of a sex difference 573

WARREN M. COX, JR. AND ARTHUR J. MUELLER. The relative efficiency of different forms of intravenously administered nitrogen on nitrogen balance and amino acid excretion. Five figures 581
L. D. MATTERSON, H. M. SCOTT AND E. P. SINGSEN. The influence of sources of phosphorus on the relative efficiency of vitamin D_3 and cod liver oil in promoting calcification in poults. One figure 599
A. E. H. HOUK, A. W. THOMAS AND H. C. SHERMAN. Some interrelationships of dietary iron, copper and cobalt in metabolism 609
PHILIP HANDLER. Factors affecting the occurence of hemorrhagic kidneys due to choline deficiency 621
HELEN H. GIFFT AND HAZEL M. HAUCK. A comparison of four methods for studying the urinary excretion of thiamine 635

No. 6 JUNE, 1946

ANNE WILLIAMSON, D. M. HEGSTED, J. M. MCKIBBIN AND F. J. STARE. The effect of variations in the level of dietary calcium upon the growth of young rats receiving atabrine 647
BEULA V. MCKAY, MARIE FOLSOM CLARK, FRIEDA L. MEYER AND MILICENT L. HATHAWAY. Phosphorus metabolism of preschool children 657
MARION S. LEW, DOROTHY D. CLAGETT, FRIEDA L. MEYER AND MILICENT L. HATHAWAY. Nitrogen metabolism of preschool children 665
D. BREESE JONES AND KATHERINE D. WIDNESS. The comparative growth-promoting value of the proteins of wheat germ, corn germ, and of some other protein foods of plant and animal origin 675
KEITH B. MCCALL, H. A. WAISMAN, C. A. ELVEHJEM AND EDITH S. JONES. A study of pyridoxine and pantothenic acid deficiencies in the monkey (Macaca mulatta). Three figures 685
E. L. HOVE AND PHILIP L. HARRIS. Covitamin studies. V. The interrelation of alpha-tocopherol and essential unsaturated fat acids. Three figures .. 699
JOHN R. MURLIN, LESLIE E. EDWARDS, SERAPHINE FRIED AND THADDEUS A. SZYMANSKI. With the assistance of Elizabeth Nasset, Doris Smith and Dorothy Gill. Biological value of proteins in relation to the essential amino acids which they contain. III. Comparison of proteins with mixtures of the amino acids 715
HARRY J. DEUEL, JR., CORNELIA HENDRICK AND MARY E. CROCKETT. Studies on the comparative nutritive value of fats. VII. Growth rate with restricted calories and on injection of the growth hormone. Three figures 737
HARRY J. DEUEL, JR., CORNELIA HENDRICK, ELI MOVITT, MARY E. CROCKETT, IRENE M. SMYTH AND RICHARD J. WINZLER. Studies on the comparative nutritive value of fats. VIII. The failure of ether extraction to lower the nutritive value of skimmed milk powder in diets containing various vegetable fats. One figure 747
HERBERT P. SARETT, MARGARET JEAN BENNETT, THOMAS R. RIGGS AND VERNON H. CHELDELIN. Thiamine, riboflavin, nicotinic acid, pantothenic acid and ascorbic acid content of restaurant foods 755
JAMES M. ORTEN AND ALINE UNDERHILL ORTEN. The comparative value of certain dietary proteins for hemopoiesis in the rat 765